Planetary Atmospheric Scientist

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I build computer models of planetary atmospheres and design instruments that make measurements. Current efforts are toward the NASA Ames Mars general circulation model (GCM), a 3D dynamical model that simulates Martian weather and climate. Specifically I am working on including clouds and dust into the CGM. I also am a Co-Investigator on a proposed Mars mission called Pascal. Pascal consists of 18 individual probes that land all over the Martian surface. As a Co-Investigator I am in change of developing a digital camera that will take pictures of the Martian surface during probe descent.

Areas of expertise:

• Planetary Atmospheres

How I first became interested in this profession:

I think I've been interested in nature and ecology from the time I was born. As a kid, I was happier running around the woods than sitting at home in front of a TV. My father introduced me to space science and engineering early with "at-home" experiments we would perform together. By the time I was in high school I knew I wanted to be involved in the space sciences. Later in college I realized that I could bring my love for nature and space together by studying the nature of other worlds.

What helped prepare me for this job:

I think all that time I spent running around in the woods helped me the most. While in the woods I would sit and watch how things worked together, how the forest was composed of lots of parts that made a system. Watching the natural system of the forest taught me to observe other systems and recognize trends, relationships and causalities. That is my strongest attribute and helps me every day as I look at data from Mars or Earth. Of coarse I studied a lot (something I was never very good at) and that helped me build the tools that I use every day at work.

My role models or inspirations:

There were many. First was my father. When I was about 7, he and I cut a battery in half to figure out how it worked (my father is an engineer and knew how to do this without anyone getting hurt!). My wife is a huge source of motivation for me and makes me realize just how wonderful and amazing the entire universe is. Luckily my thesis advisor had enough faith in my abilities to let me make some really good mistakes! He always helped guide me but still let me go off exploring my own crazy ideas.

My education and training:

• 1992 B.A., Physics, University of Colorado
• 1998 M.S., 2000 Ph.D., Astrophysical, Planetary and Atmospheric Science, University of Colorado

My career path:

• 10 years at Colorado Space Grant College--design, fabrication, calibration and flight analysis of instrumentation on shuttle and satellite missions.
• 8 years at the Laboratory for Atmospheric and Space Physics--aerosol modeling for Mars Pathfinder and Mars Global Surveyor.

What I like about my job:

Being a planetary scientist is like being a storyteller. You get to come up with new stories or ideas about how a planet works. My job combines modeling with measurements which lets me work with instruments and missions to other worlds.

What I don't like about my job:

Sometimes there is a lot of paper work that needs to be done that has nothing to do with science. That's a drag.

My advice to anyone interested in this occupation:

Develop the tools needed to be a scientist early on! If you know your math and physics, it frees up your time to think about the real problems. Learn to observe and ask questions. All science starts with an observation, an idea or a question.